TRAINING OF DC WITH RNA SENSOR LIGANDS PROMOTES HIGHLY FUNCTIONAL CYTOTOXIC CD16+ NK CELLS IN TREATED CHRONIC HIV-1 INFECTED PATIENTS

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Background and aim

Potential of NK cells for eliminating HIV reservoir
In chronically infected patients

However NK cells from chronic HIV patients are dysfunctional
New strategies to potentiate NK Cell function in chronic HIV patients are needed!!
ADCC?

DNA-treated DC preserve higher proportions of CD16+ NK cells

NATURAL CYTOTOXICITY?

PIC-treated DC induce higher expression of CD107s on CD16+ NK cells
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Natural Cytotoxicity?

- PIC-treated DC express higher levels of ligands for activating NK receptors.
Test of natural cytotoxicity of NK incubated with adjuvant-treated DCs

PIC-treated DC (both primary and MDDC) are more effective enhancing natural cytotoxic function of NK cells
Test of ADCC of NK incubated with adjuvant-treated DCs

ADCC?

% CD16+ CD56dim NK cells

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<tr>
<th>Condition</th>
<th>NK</th>
<th>DC</th>
<th>ADJ</th>
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<tr>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Adjuvant</td>
<td>+</td>
<td>+</td>
<td>(DNA)</td>
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<td>(pic)</td>
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MDDC
Test of ADCC of NK incubated with adjuvant-treated DCs

ADCC CHO ASSAY = DEATH WITH AB – DEATH NO AB

DNA-treated DC are more effective enhancing ADCC function of NK cells
Conclusions

1. DCs activated with either DNA or Poly IC display different abilities to either preserve or activate CD16+ NK cells.

2. DCs activated through RNA sensors (Poly I:C) express high levels of ligands of activating NK cells receptors, induce CD107a+ Nks with natural citotoxicity function.

3. DCs treated with DNA are able to preserve higher levels of CD16+ NK that are capable of eliminating Gp120+ cells via ADCC.

Personalized DNA/PIC-DC treatment can be used to maximice Natural versus ADCC cytotoxicity in NK from Chronic HIV patients to more efficiently eliminate infected CD4 T cells.
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